TENNESSEE DEPARTMENT OF EDUCATION
FIRST TO THE TOP

Database Design/Management

Primary Career Cluster:	Information Technology
Consultant:	Bethany King Wilkes, (615) 532-2844, Bethany.Wilkes@tn.gov
Course Code(s):	5894
Recommended Prerequisite(s):	Keyboarding (0810), Document Formatting (5909)
Credit:	½
Grade Level:	10-12
Aligned Student Organization(s):	Skills USA: www.tnskillsusa.com Brandon Hudson, (615) 532-2804, Brandon.Hudson@tn.gov Technology Student Association (TSA): www.tntsa.org Amanda Hodges, (615) 532-6270, Amanda.Hodges@tn.gov
Teacher Resources:	http://www.tn.gov/education/cte/InformationTechnology.shtml

Course Description

The student will analyze and apply database design techniques and management method for organizing and maintaining files. The student will apply keying, typography, layout, and design skills in creating, designing, entering data, importing and exporting data, and printing database object and data. At the completion of the course, students will have database management skills enabling them to design and implement a relational database application. Student proficiency will lead to software certification. *(A computerized workstation with relational database and word processing software is required for each student.)*

Course Standards

Standard 1.0

The student will develop and apply concepts related to human relations, safety, career development, communications, and leadership skills for a global workplace.

The student will:

1.1   Demonstrate sensitivity to personal, societal, corporate, and governmental responsibility to community and global issues.

1.2   Demonstrate the interpersonal, teamwork, and leadership skills needed to function in diverse business settings, including the global marketplace.

1.3   Communicate effectively as writers, listeners, and speakers in diverse social and business

settings.

1.4 Apply the critical-thinking and soft skills needed to function in students' multiple roles as citizens, consumers, workers, managers, business owners, and directors of their own futures.

1.5 Analyze and follow policies for managing legal and ethical issues in organizations and in a technology-based society.

1.6 Investigate the life-long learning skills that foster flexible career paths and confidence in adapting to a workplace that demands constant retooling.

1.7 Assess personal skills, abilities, aptitudes, and personal strengths and weaknesses as they relate to career exploration and apply knowledge gained from individual assessment to research and develop an individual career plan.

1.8 Examine the goals and principles of Future Business Leaders of America.

1.9 Investigate online and office safety procedures and pass a written safety examination with 100% accuracy.

1.10 Demonstrate parliamentary procedure through office staff/chapter organizational meetings.

1.11 Apply appropriate typography concepts to industry documents.

Sample Performance Task

➢ Design and produce a team project on legal and ethical issues that includes issues and penalties for plagiarism, copied text that does not require permission, and copied data that requires permission and the process used in obtaining permission. Obtain formal permission for use of quotations, art form, design, music, and photographs. Develop and present a total team project utilizing various technology components and appropriate typography concepts.

Standard 2.0

The student will explore an existing database to learn about database objects, navigation techniques, and database design.

The student will:

2.1 Use basic terminology related to database management systems in discussion about database management systems.

2.2 Examine database objects in an existing database and the role of each object type in the database management system structure.

2.3 Navigate to view and edit records in tables and forms.

2.4 Insert, delete, and print records from datasheet view.

Sample Performance Task

➢ Navigates, examines, and manipulates an existing database.

Standard 3.0

The student will create, manipulate, and edit database table structures.

The student will:

    3.1   Identify and use appropriate data types for fields in table structures.

    3.2   Utilize relevant field descriptions, formatting, and other field specifications in database tables.

    3.3   Incorporate the use of field properties like input masks, lookup lists, default values, and validation rules to increase data validity and integrity.

    3.4   Define appropriate primary key and index fields.

Sample Performance Task:

➢   Enter data into a table from preprinted material, such as a student organization membership list, make corrections needed to view the page as intended and print the results.

➢   The Information Technology Database class will collaborate with Biology and English II in researching and developing a catalog of the trees and bushes on the school campus or in a local park. It will be necessary to develop a database that will include the tree location, identification, classification, soil requirements, water requirements and comments. To complete the database all course standards will be applied. The catalog will be merged in a word processing or desktop publishing document that includes a picture of each tree or bush which may require the assistance of the Desktop Publishing class. The Tree/Bush Catalog finished product should be bound.

Standard 4.0

The student will be able to retrieve, organize, and present data from existing table objects.

The student will:

    4.1   Enhance the display and printing of a datasheet using fonts and special effects to improve the legibility of the data displayed.

    4.2   Sort the contents of a datasheet using various fields and orders.

.   4.3   Use Find and Find/Replace function to find and update records by entering search criteria and using wildcard characters.

    4.4   Filter records displayed in a datasheet.

Sample Performance Task

➢   Provide a variety of scenarios in which students will need to use find/replace, sort, and filter functions to produce record sets that meet the criteria. Hard copies of the resulting datasheets should display all data in a legible font and layout.

Standard 5.0

The student will apply database normalization principles to relational databases.

The student will:

5.1   Demonstrate an understanding of the fundamentals of relational database design, including normalization and referential integrity.

5.2   Establish table relationships for the purpose of reducing data redundancy and optimizing data storage.

5.3   Set inner and outer join properties for table relationships.

5.4   Describe how relationships are created and the effect different relationships have on data results

Sample Performance Task

➢   Have students create a normalized database to store data from typical sales transactions with appropriate relationships among the various tables. Tables may include customers, products, transactions, and transaction details.

Standard 6.0

The student will learn query functions and create queries as the basis for forms and reports. The student will also learn the uses of various types of queries.

The student will:

6.1   Explore how basic queries can obtain information from data.

6.2   Examine the difference in the information returned in a query by the addition of criteria and/or sorting of fields.

6.3   Utilize a variety of types of queries (i.e., parameter, update, delete, make-table, and append queries).

Sample Performance Task

➢   Students will be required to construct a variety of queries to produce dynasets or make mass changes to data in response to specific scenarios.

Standard 7.0

The student will learn to develop forms for entering information, design reports for displaying information, and export data from the database into other useable formats.

The student will:

7.1   Complete the process of planning a form.

7.2   Enhance modify a form using other available controls.

7.3   Discuss the differences between reports and forms based on tables or based on queries and advantages/disadvantages of each.

7.4   Explore options for exporting data into word processing, spreadsheet, or HTML format.

Sample Performance Task

> Students will continue the development of forms for entering information about students in the selected student organization. Students will provide a printed copy of accumulated data.

Standard 8.0

The student will familiarize him/herself with the tools necessary to create a user-friendly interface with the database application.

The student will:

8.1   Evaluate the creation of a menu structure to serve as the user-interface of a database application.

8.2   Create a simple user-friendly menu structure to serve as a user interface for a data-base application.

Sample Performance Task

> The student will create a user-friendly menu structure for an existing database.